

Honorable Alvin Alm  
Assistant Secretary for  
Environmental Management  
U.S. Department of Energy  
1000 Independence Ave., SW  
Washington, DC 20585

Dear Mr. Alm:

The U.S. Environmental Protection Agency (EPA) received the U.S. Department of Energy's (DOE) Compliance Certification Application (CCA) for the Waste Isolation Pilot Plant (WIPP) on October 29, 1996. The Agency immediately commenced its review pursuant to Section 8(d)(1) of the WIPP Land Withdrawal Act, as amended, to evaluate whether the CCA demonstrates and documents WIPP's compliance with EPA's radioactive waste disposal regulations at subparts B and C of 40 C.F.R. Part 191.

On December 19, 1996, Mary Nichols, Assistant Administrator for the Office of Air and Radiation, sent you a letter identifying certain aspects of the CCA that my staff had preliminarily determined to require additional support or documentation. The purpose of that letter was to provide DOE, as early as possible, with a preliminary assessment of EPA's concerns regarding the CCA. Since we sent that letter, we have had the opportunity to: (1) conduct a more detailed review of the CCA; (2) preliminarily consider numerous public comments received on the CCA during the public comment period; and (3) evaluate DOE's responses to the letter. Based upon careful evaluation of each of these factors, we have developed lists of issues that need to be addressed by DOE in order for EPA to render a compliance certification decision (see Enclosures 1-6). This letter is based on a review of all materials received by EPA by March 12th. Since we continue to receive information from DOE on a regular basis, some of the information received since March 12th may address certain points raised in the enclosures. We will expeditiously review these materials, as well as materials received in the future.

The first issue is the adequacy of certain conceptual models. As you are aware, the Spallings Model predicts the amount of solid material released during a drilling event -- an important release scenario. The Spallings Model has been found inadequate by DOE's independent peer review panel. Also, the Chemical Conditions Model, which determines the dissolution of radionuclides in brine found around WIPP, has been deemed inadequate by the same DOE peer review panel. We have been informed by your staff that the peer review panel will be re-convened March 31 to April 4, 1997, to re-evaluate these models. The results of these peer reviews are critical to the Agency's

evaluation of the CCA. We request that DOE provide us with the peer review reports and DOE's assessment of the status of the conceptual models. This will enable us to determine the impact on our review of the CCA.

The second area of concern is the derivation of important input parameters, and their associated values, for the performance assessment. This concern is significant because parameters are used as inputs to the computer codes that calculate potential releases from the WIPP. Of the approximately 1,600 input parameters reviewed by EPA, 58 parameters that could have a significant impact on the results of the performance assessment are of concern. I have divided these 58 parameters into three different categories, each of which is listed in a separate enclosure.

The first set of parameters is those for which we have been unable to find supporting data (see Enclosure 2). My staff has been working continuously since November to establish the traceability of the parameter and data record packages that support the input parameter values used in the performance assessment. The Records Center has greatly improved since November. We encourage the Department to continue with these improvements to facilitate retrievability of records. To date, 13 key input parameters are either not supported by experimental or field data, or the data trail is untraceable. The Compliance Criteria, at 40 C.F.R. §194.26(a), clearly indicate that input parameters should be based on actual experimental data. To the extent that certain input parameter values cannot be obtained through data collection or experimentation, DOE may derive such values using "expert judgment." The Compliance Criteria set forth explicit requirements for the proper conduct of elicitation of such expert judgment. Thus, in accordance with the Compliance Criteria, DOE must provide the following support for the critical input parameters that appear to be unsupported by actual data: (1) documentation of actual data collection and/or results of experimentation, or (2) demonstration that EPA's expert judgment procedures were followed in selecting the parameter values.

The second set of five input parameters are those for which EPA has reviewed the supporting information and finds that the information in the record supports a value or range of values different from those selected by DOE (see Enclosure 3). EPA suggests that new values or ranges be selected for these parameters. My staff will be available to meet with DOE to explain these suggested changes.

The final set of 40 input parameters are those for which EPA has reviewed the supporting data and has questions about the value(s) selected (see Enclosure 4). My staff will be available to meet with DOE staff to review the supporting documentation for each of these parameters to see if changes to the value or range selected for each parameter are needed.

The third area of concern relates to specific scenarios that were eliminated from the CCA's performance assessment calculations. As you know, conceptual models represent our understanding of WIPP and include different types of scenarios, such as human activities (e.g., drilling) and geologic processes (e.g., earthquakes), that could occur over the regulatory time frame. EPA has concluded, as have numerous public commenters, that the CCA does not contain adequate justification for eliminating consideration of the occurrence of certain fluid injection scenarios at WIPP. Therefore, EPA requires either additional substantiation to support the elimination of fluid injection scenarios from performance assessment calculations, or revision of the performance assessment to include appropriate fluid injection scenarios.

The last item of concern relates to the final results of the performance assessment calculations. Since the performance assessment represents how WIPP is expected to perform in the future, it is critical that site characteristics, conceptual models, computer codes, and input parameters be as representative of the disposal system as possible. EPA believes that final resolution of the three issues identified above may result in different performance assessment input values, as well as revisions to some of the models. Further, EPA is aware that some models have already been changed by DOE and its contractors. Accordingly, DOE will probably need to rerun the performance assessment to demonstrate that the WIPP complies with the disposal criteria using the revised models, input parameters and scenarios. If DOE decides not to rerun the performance assessment, the Department will have to demonstrate why the combined effect of all the changes is not significant enough to require new performance assessment computer runs. An individual impact analysis of each change that does not take into account the synergistic and holistic effects of all of the changes will not be sufficient. This new performance assessment or demonstration will enable us to complete our review of the CCA.

The above requests, as well as a complete listing of other Agency concerns, are explained in detail in Enclosures 1-6 to this letter. Enclosures 5 and 6 list findings from recent quality assurance and peer review audits conducted to verify conformance with the Compliance Criteria at 40 C.F.R. §194.22(a)(1) and §194.27(b), respectively. The issues described

in this letter and enclosures include EPA's outstanding concerns with the CCA. In order to facilitate EPA's decision-making process, please send me a letter describing how, and when, the Department will resolve these concerns.

Thank you for your continued cooperation during our review process. Should you have questions regarding this request, please call me at (202) 233-9320.

Sincerely,

E. Ramona Trovato, Director  
Office of Radiation and Indoor Air

Enclosures

cc: Mary D. Nichols (EPA)  
Tom Grumbly (DOE/HQ)  
George Dials (DOE/CAO)